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Rebar and steel sheeting creates the forms of the spillwall blocks at the Dalles Dam.

Photo by Dave Hamernik, Structural & Architectural Design Section.





Our Time – Our Challenge

Americans have long reaped the benefits of a great national infrastructure, but we sometimes take it for granted.

We expect our roads, bridges, dams, waterways, electrical grids and other vital facilities to work as advertised, but we rarely devote adequate resources to maintaining them until a crisis threatens or has already occurred.

We are shocked when minimally maintained bridges collapse, yet object to those taxes designed to replace and improve them.

Each year our maintenance backlog has grown, with no corresponding increase in manpower, material or money to alleviate the challenge.

But things may be about to change, with exciting and challenging impacts on our District operations.

As I write this, we don't yet know exactly what kind of economic stimulus package the new President and Congress will pass, but it seems very likely that it will include a substantial amount dedicated to infrastructure repairs and upgrades, including, I hope, many of our District facilities.

Understanding and evaluating our capacity to execute this amount of work is our number one priority, because it will likely come with fairly tight timelines attached. If we don't get these critical tasks done on time and within budget, Congress may decide that future money would be better spent elsewhere.

So we need to be able to turn quickly from what we're doing now to what Congress, the Corps and our partners ask us to do when the stimulus package money starts flowing. That means embracing our Division commander's four "ates" and incorporating them into our operations:

Collaborate – Work together, both internally and with our partners.

Anticipate – Be proactive; lean forward, poised for the future.

Innovate – Think outside the box; keep learning and using new ideas.



Col. Steven R. Miles, P.E.

Communicate – Continually spread the word; expand the ways and voices of communication.

Although accomplishing our stimulus package targets within the prescribed time frames is going to be demanding, this is a great time to showcase who we are, what we do and how much we are capable of. As our country refocuses on our aging infrastructure, the nation will celebrate National Engineers Week Feb. 15-21.

Our District is hosting and participating in events around the region to help celebrate, and I encourage you to get involved, help tell our District story and inspire the next generation of engineers and scientists. Our big day here at Robert Duncan Plaza will be on Feb. 20.

Thank you for all you do for our Corps and nation every day.

Building STRONG – Essayons!

US Army Corps of Engineers
Portland District

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Division commander visits Portland District

Northwestern Division Commander Brig. Gen. Bill Rapp visited Portland District Dec. 17-18.

Winter weather impacted his planned visits to field projects, but his tour of the dredges *Essayons* and *Yaquina* showcased the scope and reach of the District's navigation mission.

Rapp's visit to the Port of Kalama, an important District stakeholder and partner, provided an understanding of the important industries that the Columbia River ports provide the local and national economy.

Rapp also provided his commander's intent to the District's senior leadership, and met the employees at the District headquarters.



Corps of Engineers Photos



Innovative District research applauded at Coastal Engineering Research Board

By Jennifer Sowell, Public Affairs Office

Two Portland District coastal engineers received high-level kudos for research regarding the maintenance of coastal infrastructures they presented at the Coastal Engineering Research Board in Portland, Ore., last September.

"The research that Rod and Heidi Moritz have undertaken over the last 10 years highlights how critical systematic data collection and analysis are to coastal engineering efforts," said Charley Chesnutt, a coastal engineer for the U.S. Army Engineer Institute for Water Resources.

"This work that Rod and Heidi are doing is some of the most important, cutting-edge engineering being done within the Corps," said Chesnutt. "I think they are going to have a significant impact on coastal engineering in the Corps."

The basic premise of the Moritzes' work on storm power and infragravity surge is that engineers design for what they know, so it stands to reason that the more they know about their design environment, the better job they can do designing structures to withstand it.

"Understanding the environment you're designing within is the first step in project design," said Heidi Moritz.

The design of coastal structures is currently only required to withstand one variable, wave height. The Moritzes offer that the structures protecting

Oregon's coastal harbors must contend with more than that, and understanding the full scope of those other variables is essential to designing structures that can withstand them.

"We observed that damages to structures and shorelines could not be tied strictly to wave height," said Rod Moritz.

"If we understand more about the forces coastal structures are up against, we'll be in a better position to use infrastructure money more wisely to maintain them," his wife added.

Heidi has been looking at storm power, which takes into account not only the height of the waves, but also the wave lengths, duration of the storm in hours and the number of storms per year. This cumulative calculation of wave power gives a more complete picture of what coastal structures endure each year.

"Our projects take a pounding," she said. "Taking these larger processes into account can help us understand system-wide what might be driving things."

"Heidi's work with cumulative wave power is very unique and really giving us our first real evidence that there is serious weather - if not climate - variability being measured in the Pacific Northwest," said Chesnutt.

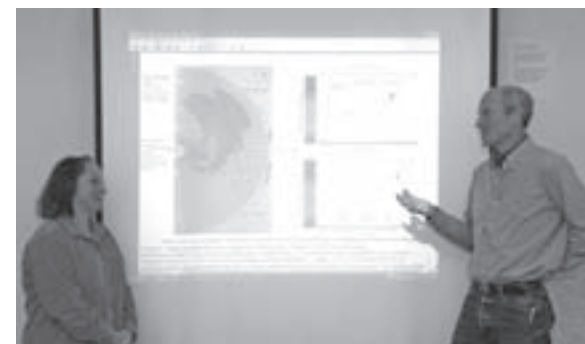
Not only are these variables essential to risk-informed decision-making regarding the maintenance of coastal structures, there is evidence



Damage done to the MCR South Jetty from the 2006 storm. Photo by Rod Moritz.

that these forces may be increasing in power and occurrence.

"She has demonstrated that cumulative wave power over a storm season is varying significantly, and the last six years have been much more storm-dominated than the previous 18-20 years were," said Chesnutt. "If we can expect this pattern to continue, it will affect how we approach our projects."



Heidi and Rod discuss some of their important observations on wave trends in the Pacific Northwest.

Rod's work with infragravity surge adds another piece to that picture. In short, infragravity surge is the additional depth of water that builds in coastal areas as storm waves converge, increasing the potential for larger waves at coastal structures.

This unanticipated and time-varying water level is the same "sneaker wave" effect that catches people off-guard near the shoreline.

"High infragravity energy can lead to surging water levels along the shore," said Rod Moritz. "That surge can cause an increase in water depth by an amount we normally don't account for at the structures."

For example, if armor stone on a jetty is designed to withstand a wave height of 16 feet, but the infragravity surge increases the water's depth and therefore the wave height by two or three feet, it can prove disastrous.

The same goes for storm power over time. Since the cumulative effects of all waves within a storm and storms within a year have not been considered in the design, the structure may not be able to withstand the combined effects.

"We can improve the reliability of our calculations with this added information," said Moritz.

Rather than plugging in the one required variable and designing structures based on that, the Moritzes have taken a deeper look at the forces acting on those structures. They have worked to characterize the wave climate along the Pacific coast and are trying to determine the causes of variability, as well as predict what will happen in the future.

"They've done this on their own and they've discovered some things that will allow for more accurate predictions of what it will take to maintain coastal structures," said Brad Bird, regional hydraulic, hydrologic, and coastal engineer for Northwestern Division.

The CERB, at which the Moritzes presented some of this research, brings experts in coastal engineering from across the Corps of Engineers together with local waterways stakeholders to discuss current research and tackle some tough issues.

The board provides broad policy guidance and reviews plans and funding requirements for the development and conduct of research projects consistent with the needs of the coastal engineering field and the objectives of the Chief of Engineers.

"This was quality scientific work, really first tier," said Dick Seymour, CERB board member and research engineer at Scripps Institute of Oceanography, U.C. San Diego. "They are bringing in a level of science beyond engineering aspects that set their work apart. For me these were the high points of what was presented at the CERB."



Heidi and Rod Moritz take a break from their research. Photos by Jennifer Sowell.





Celebrate Oregon's 150th birthday in 2009

By Melissa Rinehart, Natural Resources Section

Oregon is celebrating its 150th birthday – or “sesquicentennial” if you’re feeling fancy – in 2009, and there sure is a lot to celebrate! From sand dunes to waterfalls and the Oregon Trail to the Portland Trail Blazers, everywhere you look there’s another reason to sing the praises of the Beaver State.

The celebration of Oregon’s 150th anniversary of statehood begins Feb. 14. The people of Oregon Territory approved the constitution on Nov. 9, 1857. That constitution went into effect when the Act of Congress admitting Oregon into the Union was approved Feb. 14, 1859.

All Oregonians can help celebrate this year by submitting their own Oregon story. Many have already sent in their poems, pictures, stories and songs. You could share memories of your first hike on Mount Hood, or the beauty of rafting the Deschutes River, or the grandeur of the painted hills.

Or, like some of your coworkers, you may recall the work you completed during a tour of duty in

New Orleans, Iraq or Afghanistan, and the wave of thankfulness you felt flying over the mountains and following the Columbia River home to reach family and friends.

Members of the Portland District have special Oregon stories to share. We have supported the state since our first Oregon office was established in 1871. The Corps’ and Oregon’s efforts toward progress are intertwined, although many citizens don’t realize how many ways we support the state.

Our commitment includes providing clean electricity, safe navigation, care of the environment and recreation opportunities. We are all a part of the fabric of this state, with a unique and insightful story to share.

Your daily work as a first mate on the dredge Yaquina or a power plant operator at The Dalles Dam helps shape the state. A park ranger in the Rogue River Basin or a biologist in the Willamette Valley helps protect Oregon’s public lands.

As a member of the U.S. Army Corps of Engineers, I am proud to serve the nation, and



Sharing the Corps Story in Oregon

Official Partners with Oregon 150

equally proud to serve the local community, making life better here in Oregon and the region.

Submitting an Oregon story is easy to do on the Oregon 150 Web site at <http://www.oregon150.org/tell-your-oregon-story/>. Simply fill in the blanks, add a picture or a sound bite if you have one, and click the “Submit” button.

Here are some other fun things to consider as we enter this special year. For more details, visit www.oregon150.org.

Oregon State Ball: Here’s your chance to celebrate Valentine’s Day in style. The Oregon Ball will feature contemporary and 1859 music, a catered dinner and no host bar, dancing and dance lessons, re-enactors, displays about the state and a silent auction. Costumes are encouraged!

For more information and to buy tickets visit: www.ornga.org.

Travel Oregon 150: Oregon covers over 98,000 square miles. That’s a whole lot of beautiful and amazing state to explore. In partnership with traveloregon.com, dedicate this year to visiting parts of the state you may never have seen. If you travel 150 miles or more, you’ll be eligible for all sorts of freebies. Road, bike or river trips, anyone?

Take Care of Oregon Days: Give the gift of your time. Oregonians will join together and take on community projects that will keep Oregon strong for the next 150 years. The “Take Care of Oregon Days” projects inspire citizens across Oregon to roll up their sleeves and give back to their communities.

The goal is for 500 projects and 20,000 volunteers throughout the month of May to improve the quality of life for everyone. Let’s get started and make our best assets shine!

Oregon! Oregon! 2009: New York City has “West Side Story,” and we have “Oregon! Oregon!” Originally performed for our 100-year anniversary, this musical has been given an updated

treatment by the incomparable Pink Martini troupe. See performances throughout the state from August to September 2009. When else will you get to see a musical about Oregon?

There’s so much worth celebrating that we’re going to need everyone’s help to do it right. Please consider sharing your Oregon story and participating in one of the events listed above. Help us celebrate Oregon – 33rd in the Union, but first in our hearts! 🍷



“I never thought I would have such a great job when I moved to Oregon ... Working as a park ranger, teaching people about how the Corps navigation lock works at Bonneville Dam. I can’t imagine anything better than being on the Columbia River Sternwheeler at sunset in the summer.” Photo courtesy of Melissa Rinehart.





Cathy Kennedy: A road less traveled

Employees take many paths to the Corps, but few took a logging road

By Diana Fredlund, Public Affairs Office

For as long as she can remember, Cathy Kennedy loved spending time in her dad's shop, watching and helping him fix just about anything with gears and a motor. If she wasn't riding her beloved horses, she was up to her elbows under the hood of a truck.

With her love of numbers and gadgets, you might think her path to her current job as a power plant electrician at The Dalles Dam would have been pretty straightforward, but Kennedy's road was much more scenic.

Kennedy met her first horse in the 4th grade, and horses have provided friendship and adventure ever since. They also helped her see another side of life when she began helping a neighbor exercise her Arabian horses.

"It's true I never really learned to iron," Kennedy laughed. "I was much better with a grease gun. But my neighbor was well traveled and shared her love of the finer things in life."

Thanks to her neighbor's influence, Kennedy learned she loved to cook. "Then I wanted to cook and tear the stove apart!" she said.

Kennedy drove logging trucks for her father after graduating from high school. Lumber was in high demand then, and good drivers were hard to find.

"Driving those big trucks was definitely challenging, but I loved it – and dad was happy to have a good driver," she said.

Kennedy left her home near Bend, Ore., after about four years to study electronics engineering technology at the DeVry Institute of Technology. With her bachelor's degree in hand, Kennedy moved to Portland, where she took a job working

on medical equipment. It wasn't long before she realized how unusual her interests seemed to others.

"Maybe it was my small-town upbringing, but I'd never thought about how men might react to a woman in a non-traditional job," she said. She'd been the only woman at school, and found the same in her new job.

"There were challenges in being accepted for my abilities, but I just did my job and looked after the equipment," Kennedy said.

Portland was a big city, though, and Kennedy missed her rural lifestyle and her horses. She returned home after a couple of years and went back to driving her dad's logging trucks and helping around his repair shop.

"Dad was a mechanical genius – he could fix anything. The best part was that he was always getting wrecked logging trucks and rebuilding them, so every year I got a 'new' truck," she said.



Photo courtesy of Cathy Kennedy.

Kennedy loved her work, but a small bird – the Northern spotted owl – caused a big crash in the logging industry. Drastically reduced logging operations forced her to look for another livelihood.

Memories of cooking with her neighbor came back and Kennedy's life took a new route.

"I liked to cook, so I decided to go to cooking school," Kennedy said.

After graduating from the Western Culinary Institute in Portland, she and another student started a catering business. The biggest challenge was finding a commercial kitchen they could use, until they met the manager of the Portland Expo Center.



Photo courtesy of Cathy Kennedy.

"He agreed to let us use their kitchens for our operation if we would cater his functions," Kennedy said. "It was about a 50-50 deal, which worked well for us."

Kennedy's rural roots kept calling to her, though, and she returned home after a while. Logging was still limited, but she started driving her dad's logging trucks again on a limited basis. With the rest of her time, Kennedy leased the Balch Hotel in Dufer, Ore., which included a catering operation.

"Holidays and wedding seasons were really busy," Kennedy said. "I baked wedding cakes, did all the floral arrangements and hosted receptions and parties."

She just couldn't stop driving those logging trucks, in spite of how busy she was – she loved it too much. Kennedy recalled many times when she'd deliver two or three loads of logs, pick up one more load and park her truck across the street from her hotel.

"I'd pick up one more load, park the rig and run into the hotel to prepare for an upcoming event. Then I'd get up early the next morning and deliver those logs. People used to call me 'Peterbuilt and Posies,'" Kennedy laughed, adding, "Trucks and flowers – that's me!"

When the hotel's owner decided to sell the property, Kennedy was faced with another choice: buy the business herself, or move on to another line of work. A guidance counselor, knowing her electronics engineering background, suggested she consider applying for a Corps power plant training program.

"I liked the idea right away – it seemed a perfect fit," she said.

"I loved driving those big rigs, and the catering was great fun, but the work I'm doing now is the best job I could ask for," Kennedy said.

Her current assignment is rewiring turbine pits and installing new turbine bearing pump and top plate pump controls at The Dalles Dam with her work buddy Jeff Smith.

"We rewire everything through the turbine pit, run the wire to the switch and gauge controls and up to new, state-of-the-art electrical boxes," she said.

Each turbine takes about three months to complete.

"The turbines are such amazing machines, still working smoothly after all this time. We're proud to be doing our part to keep them running another 50 years," Kennedy said.

Although she's still taking on non-traditional jobs, she's not the only woman on her team anymore: three other women are part of the 135-person powerhouse team.

"Times have definitely changed since my medical equipment days," Kennedy said. "There

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The complete rewiring of the generator includes new switch and gauge control boxes. Photo by Diana Fredlund.





A wall rises to guide fish from danger

Portland District team overcomes complex challenges

By Amy Echols, Public Affairs Office

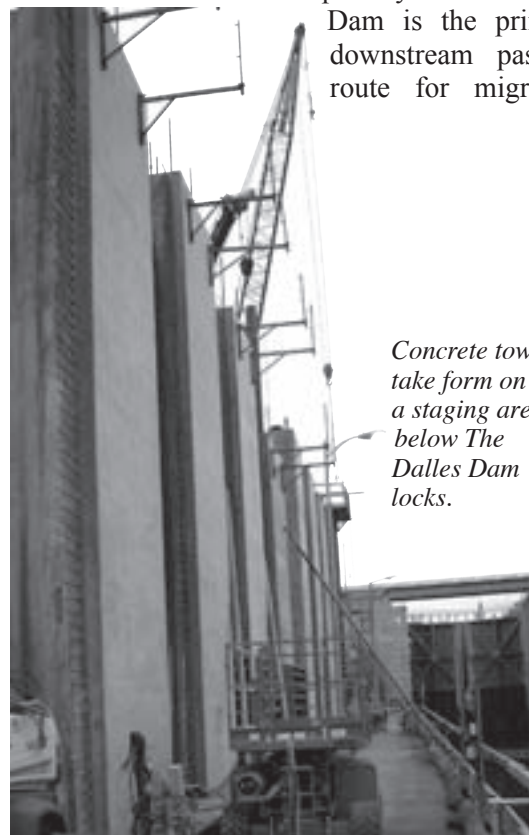
Photos by Jeff Ament, Structural & Architectural Design Section

The Corps is building an 830-foot wall in the middle of the mighty Columbia River.

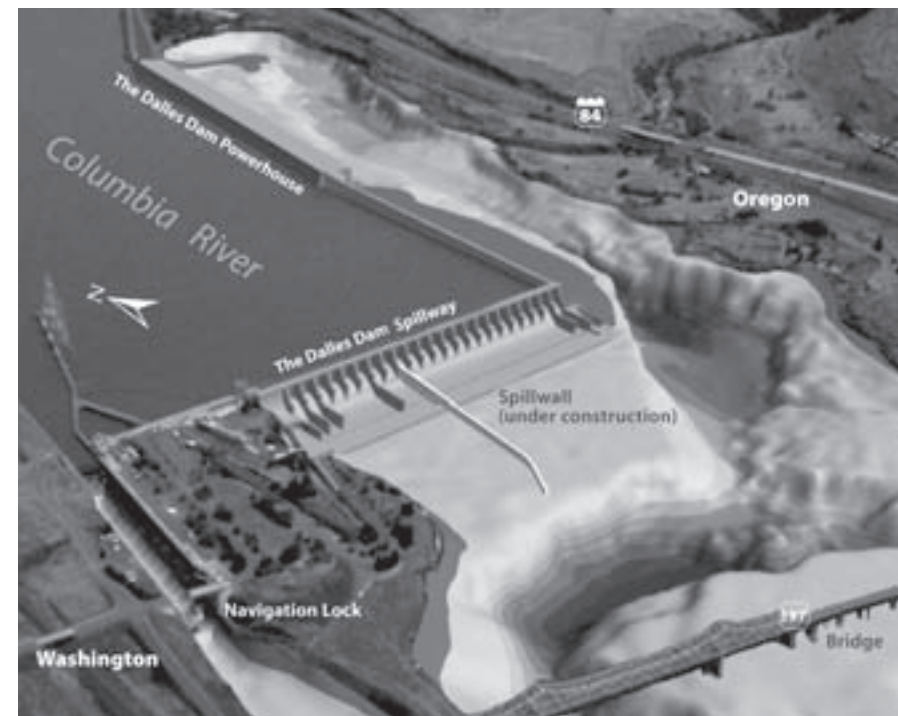
It's not designed to block either water or fish, but will instead deflect the spillway's flow and guide endangered juvenile salmon to the deepest, fastest and safest part of the river downstream from the The Dalles Dam, away from ambushing predatory fish and birds.

The challenges: construction cannot impede hydropower production and river navigation, and the wall must stand up to the significant forces of spill and the eroding action of water. Most importantly, it must safely guide endangered fish downstream to increase their rate of survival.

The spillway at The Dalles Dam is the primary downstream passage route for migrating



Concrete towers take form on a staging area below The Dalles Dam locks.



The spillwall will extend 830 feet from The Dalles Dam, across the basalt riverbed of the tailrace. It will guide endangered fish to the deepest, fastest area of the river.

juvenile salmon. When the Corps spills 40 percent of the river's total flow, about 80 percent of the downstream migrating juvenile salmon pass over the spillway.

The orientation of the spillway and its high flows currently combine to guide juvenile salmon toward shallow areas and the islands of the US Highway 197 bridge. Predators wait in these areas to spoil themselves on the migrating fish.

Fisheries experts estimate that guiding fish to safer parts of the river will increase overall passage survival rates by as much as 4 percent for yearling Chinook salmon and steelhead, and 3 percent for subyearling Chinook salmon. This improvement could meet or perhaps exceed juvenile salmon survival goals for The Dalles Dam.

Modeling for Success

A team of Portland District fisheries biologists and engineers were tasked with modeling, designing and constructing the wall. They collaborated closely on the design with state and federal fisheries agencies and tribal representatives at the Corps' Engineering Research and Development Center in Vicksburg, Miss.

"All the right people worked together right there at ERDC on the biological, technical and structural elements of the wall's design," explained Bob Wertheimer, the District's lead fisheries biologist on the project. "All options or ideas to increase fish survival were considered."

District structural engineer and the project's technical lead Jeff Ament explained that the 1:100 scale model included details from underwater bathymetry of the river and simulated real spill and flow conditions from the dam's powerhouse and spillway.

"The team created a wall design from both a physical and computer model. Our colored dye tests confirmed that with a wall between spill bays 8 and 9, complete with a curve at the end, we are on the track for considerable flow and fish passage improvements," said Ament.

Coordinating a construction challenge

Construction of the spillwall began in October 2008, and includes synchronizing complicated, cumbersome and potentially dangerous operations, all while the Columbia, as songwriter Woody Guthrie wrote, rolls on.



Towers from a staging area just upstream of the US Highway 197 Bridge are loaded on a barge, ready for transport and placement.

The project, including a \$45 million construction contract awarded to General Construction Company of Poulsbo, Wash., is funded by Congressional appropriations under the Columbia River Fish Mitigation Program.

In the river itself, one team of divers and a large support crew maneuver barges, cranes and metal forms to build 90 to 110-foot long concrete

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A flotilla of dive and crane barges, tugs, and support vessels maneuver below The Dalles Dam to support spillwall construction.





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leveling slabs on the uneven basalt river bottom downstream of the spillway apron.

“It’s an amazing on-water construction dance,” said Rick Benoit, Portland District dive coordinator and dive safety officer. “But with the amount of equipment, people, barges and boats, there is little margin for error. Safety awareness and accident prevention are key here, and everyone has a role.”

On land, contractors are casting 43 10-foot wide concrete blocks of five different vertical



A concrete tower is lowered to the base of The Dalles Dam spillway.

heights and 12 lengths, with some weighing up to 200 tons.

The blocks’ hollow cores reduce their weight so a 300-ton barge crane (one of the largest in the country) can place them in a designated sequence on the dam’s stilling basin, spillway apron and the new leveling slabs.

A second team of divers keeps the slabs free of debris to ensure a level surface for the blocks. Crews then place concrete underneath each block and fill the hollow cores to ensure full load transfer to the underlying surfaces.

Divers also work with crews on top of the wall sections to set up frames for placing concrete between adjacent sections.

Tension is everything

Next, crews guide drilling equipment through four precast, vertical ducts in each block and drill through the leveling slabs and deep into bedrock. Wire ropes are then run through the ducts and slabs and are grouted into the river bed.

Project Manager Pat Duyck emphasized that the key to the wall’s success is this drilling and anchoring.

“The wall’s stability and structural integrity comes from the 178 anchors, averaging 120 feet in length,” said Duyck. “To withstand the dynamic forces of the river’s flow, these rope anchors will put compression loads into the wall to hold it firmly to the river bottom.”

Duyck said that each anchor will be stressed and locked off to the top of the wall at a staggering 1 to 1.5 million pounds of force—that’s up to 6 million pounds of force holding each block in place.

When complete, the first 200 feet of the wall will be 43 feet high and the remaining length of wall between 25 and 30 feet high, rising from the river bottom to roughly 15 feet above the normal level of the tailrace.

Concrete logistics

Delivering more than 1,000 truckloads of high quality concrete to the middle of a broad, swift river creates logistical headaches not seen on most land-based projects.

Concrete from Hood River Sand and Gravel is first trucked to staging areas and pumped to a remixer barge. Buckets and cranes then transfer the mix to another barge, which pumps it into the hoses that divers use to direct the concrete into the leveling slab forms.

In addition, a specialized 1,500-foot pipe runs from the shore, along the dam’s spillway and out to on-water work areas. This slick line provides concrete to fill the gaps between the blocks and their hollow cores.

Scheduling around fish migration

To decrease the impacts of construction on the annual migration of juvenile salmon downstream and adults salmon upstream, the two in-water work seasons are limited to October 2008 through March 2009 and October 2009 through March 2010.

After more than two years of collaboration and overcoming engineering challenges, a construction crew of over fifty is putting in countless hours and fighting the cold east winds to make the spillwall a reality. Motorists and train conductors watch the wall rise as they travel through the Columbia Gorge.

The contractor will complete about 300 feet of the wall in the first season and the remaining 530 feet by spring 2010, in time for the annual April through August spill season, when the largest number of juvenile fish migrate down the Columbia River to the ocean.

This new, speedy diversion away from predators will take salmon recovery another step forward, all while the mighty Columbia rolls on.

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Cathy Kennedy:

are still challenges and people have different viewpoints, but at the Corps no one cares whether you’re a man or a woman, as long as you know your job.”

“Cathy has done many things in her life and appreciates where she is,” said James Ohnstad, electrical working foreman at The Dalles power plant and Kennedy’s boss.

“When she’s in charge of a job, Cathy keeps her team on task and on time. She can be an aggressive leader and a supportive follower, depending on what’s needed. I think most employees feel very comfortable talking with Cathy about anything,” he said.

Kennedy’s path to the Corps was anything but straightforward; it was filled with Peterbults and posies, wedding cakes and now turbine generators. She may have taken a scenic route to where she is, but Kennedy knows where the road ahead leads.

“I love what I do, and the rural setting around The Dalles suits me. Here I can cook for friends, take machines apart and put them back together and enjoy small town life.”





District electricians answer call to keep Soldiers safe in Iraq

Story by Scott Clemans, Public Affairs Office

Photos courtesy of Nell Cochran, Task Force SAFE

Five Portland District electricians have answered the call to improve Soldier safety in Iraq.

John Day Dam electricians Nell Cochran, Jens Fredericksen and Gary Wageman and Bonneville Dam electricians Daryl Smith and Bruce Yeadon deployed to Iraq in September as part of Task Force SAFE, a Multinational Force – Iraq unit conducting electrical, and fire and safety inspections of all buildings occupied by U.S. troops in Iraq.

The five were part of the first wave of 30 government employees who responded to a September 2008 call for volunteer electricians, electrical engineers and fire safety experts to ensure the safety of U.S. personnel.



Cochran says working alongside the various military units and contractors to make things safer for the Soldiers and Civilians has been a great experience.

Explaining her decision to volunteer, Cochran, a power plant electrician at John Day Dam for 10 years, said, “Not being prior military, I felt like I finally had a service or skill to contribute,” to the Iraq mission.

The mission is both enormous in scope and urgent in need, and the 30 first responders eventually grew to a contingent of about 150 government and contract electricians and quality assurance representatives.

“The scope of the mission includes 4,500 hardstand buildings and 85,000 temporary facilities,” said Chief of Engineers Lt. Gen. Robert Van Antwerp in his operations order calling for support to MF-I. “In addition, there are approximately 250 Contingency Operating Locations with an unknown number of facilities requiring inspection.”

The 16 U.S. personnel electrocuted in Iraq since the beginning of Operation Iraqi Freedom illustrate the urgent need to accomplish the mission, Van Antwerp said.

Shocks and electrocutions could be traced to improper wiring of temporary facilities, Lt. Col. Paul Olsen, commander of the 249th Engineer Battalion told Engineer Update. Sixteen Soldiers from the 249th were part of the initial Corps contribution to the task force.

In addition to shocks and electrocutions, fires occur frequently at U.S.-occupied facilities.

Maj. Gen. Timothy McHale, head of Task Force SAFE, told MF-I publication Victory Times that the fires are caused by overloading circuits, constantly running electrical equipment, ballasts burning out, clothes on top of wires or wires running underneath beds.

In addition to the inspection and repair of electrical systems, Task Force SAFE is also providing awareness campaigns, education and training to troops and civilians, and developing improved electrical plans, policies and procedures.

Cochran, now an electrical inspector at Camp Cropper, said that she thinks Task Force SAFE has made a big difference in Soldier safety in Iraq.

“Because of Task Force SAFE, everyone is more empowered,” she said. “When a soldier ... wants to shut off power to a facility or get something changed on account of life, health and safety hazards, he or she is taken more seriously.”

“I feel a great sense of accomplishment,” Cochran said.

Cochran admitted that her specific role with the task force wasn’t exactly what she expected.

As an electrician, “I expected to come over here, find deficiencies and get to actually fix the problems myself,” she said.

Corps Soldiers and Civilians have instead primarily conducted quality assurance reviews and inspections. According to Engineer Update, the Corps awarded a \$59.5 million contract to an Iowa firm to provide the services of 70 master electricians and more than 30 fire protection specialists.

The contract is for one year, with two six-month option periods

Still, Cochran said, working alongside the various military units and contractors to make things safer for the Soldiers and Civilians has been a great experience.

“This has been the best experience in feeling like I’ve actually made a difference,” she said.

The Soldiers of the 249th redeployed from Iraq in December, so there is a need for USACE civilian electricians to serve as quality assurance representatives for at least another year.

“Several volunteers have already extended their deployments for up to a year,” Scully said. “The work is critical for the life safety of our service members and civilians serving in Iraq.”

Four of the five Portland District electricians extended their original 90-day deployments, and are now due home in March.



Task Force SAFE is providing inspection and repair of electrical systems; education and training of troops and Civilians; and developing improved electrical plans, policies and procedures.



Portland District electricians (from left to right) Bruce Yeadon, Gary Wageman, Jens Fredericksen and Nell Cochran deployed to Iraq in September as part of Task Force SAFE. Daryl Smith (not pictured) also deployed.



John Day Dam power plant electrician Nell Cochran (right) is an electrical inspector at Camp Cropper in Iraq for Task Force SAFE.





Preparedness and personal responsibility prove life-saving

By Jennifer Sowell, Public Affairs Office

Ed Anderson, second mate on the dredge Essayons, was awarded the Civilian Award for Humanitarian Service Jan. 13 for saving the life of a contractor after a serious accident on board the dredge in September.

The contractor suffered a head injury when a 100-pound deck plate fell nearly 30 feet from an upper deck of the dredge while it was docked at Cascade General Shipyard for repowering.

Anderson, who was the medical officer on duty at the time, had just started his security watch when he received a radio call for immediate medical attention. The reported severity of the injury prompted him to grab supplies from the ship's hospital room on his way to the wounded worker.

Reaching the lower pump room, Anderson found the injured man still conscious but bleeding profusely. Anderson's extensive emergency training allowed him to stay composed and do what was necessary in the face of such a scene.

"In that situation you kind of go into another world and just do what you're trained to do," said Anderson.

He immediately began checking the man's vital signs and response, and checked for other injuries. Anderson applied direct pressure over the wound, dramatically limiting blood loss, while monitoring the man's airway, breathing and circulation.

"These things are very basic, but in an emergency can be easy to overlook," said Anderson.

Other dredge crewmembers helped clear onlookers away from the area, giving Anderson and the injured man room to breathe and

allowing medical personnel a path to quickly get to them.

Paramedics arrived within about 20 minutes and requested Anderson continue providing assistance while he relayed what he knew about the man's condition. After the contractor was stabilized with a cervical collar and backboard, he had to be hoisted out of the lower deck of the dredge with the shipyard crane.

The training, preparedness and teamwork of the crew made the difference between life and death for the contractor. The paramedics credited Anderson's actions during the first critical minutes after the injury with saving the man's life.

"He was the right man in the right place at the right time," said Essayons Capt. James Holcroft.

The Coast Guard requires dredge crews to have basic first aid training, but Anderson's outside involvement as a part-time ski patrolman provided him more advanced training and more occasions to actually put it to use.

"I've seen a few bad accidents on the mountain, but this was the most serious accident I've ever



Ed Anderson received the Civilian Award for Humanitarian Service from Lt. Gen. Robert Van Antwerp Jan. 13 as his wife Ellen and son Neil look on. Photo by Billie Johnson, ACE-IT photographer.

Corps of Engineers Photo

attended to," he said. "It amazes me that there are not more serious injuries in such a hazardous environment."

Despite the inherently dangerous environment, the dredges have a surprisingly good safety record. There are plenty of bruises, scrapes and minor burns, and a few broken bones, but this was only the second serious accident in the history of the dredge, said Anderson.

"It helps that safety is drilled into everyone's minds," he said.

Safety is a good start, but accidents will still happen. Anderson's extra training and commitment to using it are what saved a man's life.

"Since I'm involved in many activities that are far away from medical facilities and have a high risk of injury, I feel a personal responsibility to be able to help anyone in a life threatening situation," he said.

It was this mindset and the heroic actions Anderson took that earned him the Civilian Award for Humanitarian Service.

In presenting him the award, Lt. Gen. Robert Van Antwerp, Chief of Engineers, noted the severity of the scene Anderson had come upon and asked those in the room what they would have done in the same situation.

"Ed, it sounds like you *did* what all of us would have *wanted* to do," said Van Antwerp.

"I just feel lucky that he came through it and is doing well," said Anderson.

The award says it all: "The actions taken by Mr. Anderson provided immediate life sustaining assistance until medical professionals arrived on scene. The singularly distinctive accomplishments of Mr. Edwin W. Anderson reflect great credit upon himself, the U.S. Army Corps of Engineers, and the United States Army."

Salmon barges deliver water safety message

By Melissa Rinehart, Natural Resources Section

As you boat or drive in the Columbia River this spring and summer, keep an eye out for the U.S. Army Corps of Engineers juvenile salmon fish barges. Two of them will be delivering a special water safety message to boaters, anglers and all who recreate on the Columbia River.

Portland and Walla Walla Districts worked together to remind visitors to the waters managed by the Corps of Engineers to wear their life jackets while they are on the water.

This is an important message to send. According to the U.S. Coast Guard, two-thirds of all fatal boating accident victims drowned. Of those who drowned, ninety percent of them were not wearing their life jacket. Corps of Engineer national water safety statistics mirror the Coast Guard findings.

Throughout the year, Corps Park Rangers work with local communities to share the importance of learning to swim, watching your

kids around water, awareness of hypothermia, and of course wearing your life jackets.

Always think safety and wear you life jacket when around the water – for the people you love and those who love you.



Juvenile fish barge with water safety message. Photo courtesy of Melissa Rinehart.





Portland District tackles the risky business of dam safety

By Jim Hinds, Concrete and Dam Safety Section

It is difficult to consider dam safety without thinking about risk and risk management. There is risk in nearly everything that we do, from flying in an airplane to eating a steak.

Likewise, there is risk in every structure that we build, including bridges, buildings, tunnels and dams. It really doesn't matter how new the bridge or dam is or to what standards they were built.

We usually think of risk as being associated with events that result in bad consequences. For example, financial risk refers to volatility of investment returns, market risk refers to changes in supply and demand or global commodity prices, and technological risk might refer to obsolescence of current operating systems.

Dam safety engineers are generally most concerned about physical risks associated with natural disasters, or operational risks related to aging infrastructure, deferred maintenance or perhaps even accidental mis-operation.

For dam safety and for engineering applications in general, risk is commonly defined quantitatively as the likelihood of an event occurring multiplied by the consequences or impacts if it occurs. So even if the probability of an event is low, high consequences can mean high exposure to risk.

When something breaks, the traditional questions

that engineers ask are: What went wrong? Why did it break? Using risk-based analysis, engineers ask these same questions but also ask: How likely is it that this will break? What are the consequences if it does?

Sometimes a fairly likely event is identified that could have very adverse consequences, so it makes good sense to spend money and manpower to reduce the probability or consequences

A good example of this is the emergency repair work being done on the Foster Dam spillway gates, on which structurally deformed steel was observed.

Since the gates are used regularly, the probability of a gate actually failing during operation was considered to be very high. A failure would result in significant downstream flooding; therefore the overall risk was very high. Repairing the gates reduces the probability that a gate will fail, thus reducing the overall risk.



Mechanical engineer Dave Kloewer inspects trunnions and pier anchorages at The Dalles Dam.

Today, risk is commonly used as a basis to compare or prioritize problems. In our world of aging infrastructure and limited resources, it is easy to see the value of understanding risk and using the limited available resources to maximize risk reduction.

There is a renewed and growing emphasis within the Corps on dam safety, and principles of risk management are being systematically applied from the national to the District levels.

Beginning in 2005 and finishing this year, screening portfolio risk assessments will have been conducted on all Corps dams and navigation projects. The SPRA process provides a fresh look at existing structures through independent reviews.

Results of these preliminary screenings are being used to identify the urgency of needed actions and provide a national understanding of issues and priorities.

As a result, the Corps is already funding studies and construction repairs on a number of projects throughout the country, including a major rehabilitation study for our own John Day Lock and Dam.

Interim risk reduction measure plans are now being formulated for projects relegated to a lower national priority, in an attempt to identify what short-term actions can be taken to minimize risk until long-term repairs can be funded.

In the Portland District, interim risk reduction measure plans have been or are currently being developed for Cottage Grove, Foster, Fall Creek, Lookout Point, Hills Creek, The Dalles, Bonneville, John Day, Fern Ridge, Detroit and Willamette Falls Locks.

In future years, more detailed risk assessments will be performed on every project at least every 10 years.

Meanwhile, like a well-oiled machine, the District's Dam Safety team continues to look for signs of distress or problems at our projects that might signify adversely changing conditions or developing problems.

The team typically includes structural, hydraulic, mechanical, electrical and geotechnical engineers, geotechnical specialists, geologists, and operation

specialists such as maintenance workers, rangers, environmentalists and project operators.

The District's Dam Safety program includes hands-on periodic inspections, foundation drain inspections, survey and instrumentation monitoring, bridge inspections, hydraulic steel structures inspections, special inspections, seismic and hydrologic evaluations, and even dam safety training.

Structures that fall under the NWP Dam Safety Program include 19 high-hazard dams, a sediment retention structure near Mount St. Helens, and



Geologist Richard Gunsolus inspects the condition of protective riprap on the upstream face of the Dexter Dam embankment.

five navigation locks and 13 hydropower plants within the Columbia, Willamette and Rogue River basins.

The significant and continuing contributions of the engineers, scientists and project staff throughout the District are not always easy or comfortable – standing in freezing water, pelted with rain and snow, being lowered into dark damp shafts, crawling through muck, always looking for the elusive crack, the broken weld or the strange new seep.

The unfailing willingness of our District family, with their institutional knowledge and their remarkable expertise, to participate in these activities is key to a successful dam safety program, and a primary factor in assuring the continued safe operation and care of our projects. ■





Chambers named OSU distinguished engineer

Story courtesy of Oregon State University

Photos courtesy of Don Chambers

Don Chambers, chief of the Portland District's Engineering and Construction Division, will be inducted into the Oregon State University Academy of Distinguished Engineers Feb. 20 during a ceremony in Corvallis, Ore.

Membership in the OSU Academy of Distinguished Engineers is awarded to mid-career Oregon State alumni who have made distinguished contributions to the profession, field, OSU or society at large. They have at least 20 years of experience beyond the bachelor's degree and are still practicing their profession.



The award is one of several given at the annual Oregon Stater Awards, a gala event that recognizes OSU engineers and their career contributions to society.

"The Oregon Stater Awards ceremony is our way of expressing our gratitude to our most exemplary alumni," said Chris Bell, associate dean of the College of Engineering. "These men and women have done extraordinary things to improve the world, and this is our way of honoring who they are and the work they have done."

The annual awards banquet is held every year near National Engineers Week, a week of national engineering events and celebration.

Chambers became chief of the Engineering and Construction Division in January 2008. He supervises about 160 engineers, geologists, hydrologists, scientists and other technical personnel, and is responsible for planning, designing and construction for civil works projects such as dams and navigation locks, flood



and erosion control facilities, marine structures and fish passage facilities.

Chambers also oversees geology, soils and environmental engineering works; hydraulic design, sedimentation, hydrological and water quality studies; concrete control and design work; landscape and architectural design; construction inspection and management.

A native of Warrendale, Ore., Chambers joined the Portland District in 1976 after earning his bachelor's and master's of science degrees from Oregon State University in engineering physics and civil engineering, respectively.

He has served in a variety of increasingly responsible supervisory positions with the district's Cost Engineering and Design branches, and the Corps' Hydroelectric Design Center, a nationwide Center of Expertise. Before assuming his current position, Chambers was chief of the District's Design Branch for almost two years.

Chambers also served a tour as deputy chief of the Construction-Engineering Division and manager of the Restore Iraqi Electricity project for the Corps' Gulf Region North District in Mosul, Iraq. 